

Title (en)

METHODS, SYSTEMS, CIRCUITS, AND COMPUTER PROGRAM PRODUCTS FOR DETERMINING POLARIZATION OF A GAS

Title (de)

VERFAHREN, SYSTEME, SCHALTKREISE UND COMPUTERPROGRAMMPRODUKTE ZUR ERMITTLUNG DER POLARISATION EINES GASES

Title (fr)

PROCEDES, SYSTEMES, CIRCUITS ET PROGICIELS POUR LA DETERMINATION DE LA POLARISATION D'UN GAZ

Publication

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Application

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Abstract (en)

[origin: WO03098248A2] A system for determining polarization of a gas comprises a container that contains the polarized gas. An oscillator circuit comprises an NMR coil that is positioned adjacent to the container. A pulse generator circuit is configured to generate an electrical pulse that may be transmitted to the optical cell through the NMR coil to excite the polarized gas responsive to a control processor. A Q-reduction circuit that is independent of the pulse generator circuit is configured to reduce oscillations in the oscillator circuit from the transmitted electrical pulse responsive to the control processor. A receive circuit is responsive to an electrical signal that is induced in the oscillator circuit due to the electromagnetic excitation of the polarized gas. The control processor is configured to determine the polarization of the gas based on the output signal of the receive circuit. A polarimetry circuit for determining polarization of a gas includes an NMR coil that may be configured to excite a polarized gas and be responsive to an electromagnetic signal generated by the excited, polarized gas. The polarimetry circuit has a reproducible polarization measurement variability of less than 2% when the NMR coil is exposed to a temperature in a range of about 0 °C to about 200 °C. Moreover, circuit-to-circuit polarization measurement variability may be less than about 3%

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